

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :
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Knobel et al. : Attorney Docket No.: 43315-213809
: :
Application No.: 10/524,272 : Art Unit: 3651
: :
Filed: February 11, 2005 : Examiner: K. Tran

Title: AUTOMATED PRODUCTION SYSTEM FOR OBJECT IDENTIFICATION,
SELECTION AND TRANSPORT

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This brief is submitted pursuant to the notice of appeal filed September 16, 2008.

Real Party In Interest

The real party in interest in this appeal is the assignee, ABB AB, Kopparbergsvagen 2, SE-721 83, Västerås, Sweden, by virtue of an assignment from the inventors to ABB AB, which was recorded in the U.S. Patent and Trademark Office on February 11, 2005, at reel 016796, frame 0772.

Related Appeals and Interferences

Applicants are unaware of any related appeals or interferences which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

The application as filed included claims 1 and 2. In a response submitted August 14 2006, to the office action issued May 19, 2006, Applicants cancelled claims 1 and 2 and presented claims 3-20. In a response submitted January 9, 2007, to the restriction requirement issued October 13, 2006, Applicants restricted prosecution to the invention recited in claims 11-20. Claims 2-10 were withdrawn from consideration by the Examiner. In a response submitted July 6, 2007, to the final office action issued March 6, 2007, Applicants amended claims 11, 12, 14, and 16 and presented claim 21. On July 8, 2007, the Examiner issued an advisory action indicating that the amendments to the claims raised new issues that required further search and/or

consideration. On September 6, 2007, Applicants submitted a request for continued examination requesting that the amendments be entered. In a response submitted January 17, 2008, to the office action issued October 18, 2007, Applicants amended claims 11, 14-16, 20, and 21. In the final office action issued April 16, 2008, the Examiner finally rejected claims 11-21. Applicants appeal the rejection of claims 11-21.

Status of Amendments

Applicants have not submitted any amendments to the claims subsequent to the issuance of the final office action.

Summary of Claimed Subject Matter

The invention recited in independent claim 11 relates to a method of selecting an object out of a plurality of objects moving in a product flow direction in an operation area for transport to a predetermined location (page 10, lines 12-14; and Fig. 1). The method includes detecting the plurality of moving objects present in the operation area and moving in the product flow direction (page 5, lines 24-26). An object to be picked from the plurality of moving objects in the operation area is selected (page 4, lines 2-3; and page 6, lines 2-4). The selecting includes defining a sort direction for each of the plurality of moving objects present in the operation area (page 3, lines 28-29; page 4, lines 30-31; and Fig. 1). The sort direction is at an angle to the flow direction (page 2, lines 14-15). A passageway is defined along the sort direction of each of the plurality of moving objects (page 4, lines 31-32; and page 5, lines 31-33). Whether any other of

the plurality of moving objects penetrates each passageway for each of the plurality of moving objects is determined (page 4, lines 32-33; and page 5, line 33, through page 6, line 2). An object is selected from the plurality of moving objects for which the defined passageway is free from penetration of any other of the plurality of objects (page 4, lines 33; and page 6, lines 2-3). The selected object is picked from the plurality of moving objects by moving the selected object in the defined passageway in the sort direction for transport to the predetermined location (page 4, lines 11-17; page 6, lines 17-20; and Fig. 1).

As recited in claim 12, which depends from claim 11, the method may include picking the selected object prior to moving the selected object (page 4, line 29; page 5, line 6; page 5, line 24; and page 6, lines 17-20).

According to claim 13, which depends from claim 12, the object may be picked without disturbing other objects in the operation area (page 4, lines 11-13).

Claim 14 recites that the sort direction may be perpendicular to the flow direction (page 2, line 30, through page 3, line 2; page 5, lines 22-23; and Fig. 1).

According to claim 15, the product flow direction may be circular (page 6, lines 22-23).

As recited in claim 16, the product flow direction may be vertical (page 4, line 20; and page 5, line 6).

Claim 17 recites that the method may include determining information regarding the objects, the information comprising size, position, speed, or orientation (page 3, lines 4-5; and page 5, lines 25-26).

According to claim 18, the selected object may be picked without disturbing other objects in the operation area (page 4, lines 11-13).

As recited in claim 19, selecting the object may further include selecting an optimal object based upon speed of the objects (page 5, lines 26-28; and page 6, lines 3-5).

According to claim 20, the method may further include repeatedly moving the objects in the flow direction through the operation area (page 6, lines 25-26).

Claim 21 recites that the flow direction may be horizontal (page 4, line 20).

The claimed invention provides flexible handling of arbitrarily arranged articles in a continuous production flow. Advantages of embodiments of the claimed invention include moving objects on a conveyor without touching other objects, optimization of production cycle performance by choosing products with shortest displacements, and vertically sorting three-dimensional objects without a predefined layer scheme for depalletizing the articles. Advantages of the claimed invention are discussed at page 5, lines 1-8, among other passages. As set forth in detail below, the cited reference does not disclose the solutions to assembly problems addressed by the claimed invention.

Grounds Of Rejection To Be Reviewed On Appeal

I. The Examiner rejected claims 11-21 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent 5,813,543 to Gesing et al.

Argument

I. Claims 11-21 are patentable under 35 U.S.C. § 102(b) over U.S. patent 5,813,543 to Gesing et al.

Gesing et al. does not disclose the present invention as recited in independent claim 11 since, among other things, Gesing et al. does not disclose a method that includes defining a passageway along the sort direction of each of the plurality of moving objects, determining whether any other of the plurality of moving objects penetrates each passageway for each of the plurality of moving objects, and selecting an object from the plurality of moving objects for which the defined passageway is free from penetration of any other of the plurality of objects. Gesing et al. does not disclose any analysis of the arrangement of objects on the conveyors. In fact, the arrangement of the conveyors disclosed in Fig. 1 will result in only a single line of articles. Thus, no analysis of the arrangement of the articles is necessary. Gesing et al. does not include any disclosure and Fig. 1 does not include any illustration of defining a passageway for each object, determining if any other objects penetrate each passageway, and selecting an object that is free from penetration. This is the arrangement of conveyors disclosed by Gesing et al. produces a single line of articles, no article would penetrate a passageway of another object even

if a passageway were calculated.

The only analysis of the objects performed by Gesing et al. is with laser 22, which determines the concentration of the pieces. This is described at col. 2, lines 32-49, which the Examiner asserts discloses determining if any other objects of the plurality of moving objects penetrates each passageway for each of the plurality of moving objects and selecting an object from the plurality of moving objects of which the defined passageway is free from penetration of any other of said plurality of objects. This passage actually discloses sorting the pieces into bins based on weight and composition. This passage does not include any disclosure of any of the elements of the selecting recited in claim 11.

In view of the above, Gesing et al. does not disclose the invention recited in claim 11.

With respect to claim 13, even if other pieces disclosed by Gesing et al. continue to move along the conveyor as one of the pieces is moved off of the conveyor, this does not disclose not disturbing the other pieces. The other pieces on the conveyor could be moved about or even knocked off of the conveyor. On the other hand, claim 13 recites picking an object without disturbing other objects in the operation area.

Additionally, Gesing et al. clearly does not disclose a circular or vertical product flow direction as recited in claims 15 and 16, respectively, which depend from claim 11. Gesing et al. only discloses horizontal product flow.

Furthermore, Gesing et al. only appears to disclose detecting a composition of the pieces. Gesing et al. only discloses taking into account the weight of the pieces cumulatively in the bins that the pieces are dropped into. Therefore, Gesing et al. does not disclose the invention recited in claim 17, which depends from claim 11.

Gesing et al. does not disclose sorting objects based on speed. The passage of Gesing et al. at col. 4, lines 10-19, does not disclose selecting an object based on speed. Rather, this passage relates to weight of the pieces. Therefore, Gesing et al. does not disclose the invention recited in claim 19, which depends from claim 11.

Gesing et al. only appears to disclose moving the objects once rather than repeatedly as recited in claim 20. The Examiner asserts that Fig. 1 discloses repeatedly moving the objects in the flow direction through an operation area. At most Gesing et al. discloses moving each piece once in an "operation area" with diverter arms 28. Therefore, Gesing et al. does not disclose the invention recited in claim 19, which depends from claim 11.

In view of the above, Gesing et al. does not disclose the invention recited in independent claim 11, or claims 12-21, which depend thereon. Therefore, Gesing et al. does not disclose all elements of the invention recited in claims 11-21. Since Gesing et al. does not disclose all elements of the invention recited in claims 11-21, the invention recited in claims 11-21, is not properly rejected under 35 U.S.C. § 102(b). For an anticipation rejection under 35 U.S.C. § 102(b) no difference may exist between the claimed invention and the reference disclosure. *See Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q. 841 (C.A.F.C. 1984).

Along these lines, anticipation requires the disclosure, in a cited reference, of each and every recitation, as set forth in the claims. *See Hodosh v. Block Drug Co.*, 229 U.S.P.Q. 182 (Fed. Cir. 1986); *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986); and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 U.S.P.Q.2d 1081 (Fed. Cir. 1986).

In view of the above, Gesing et al. does not disclose the invention recited in claims 11-21. Therefore, the invention recited in claims 11-21 is not anticipated by Gesing et al. Accordingly, Applicants respectfully request reversal of this ground of rejection.

Conclusion

In view of the above, U.S. patent 5,813,543 to Gesing et al. does not disclose patentable features of the claimed invention. Therefore, Gesing et al. does not anticipate the claimed invention. Accordingly, Applicants submit that the claimed invention is patentable over Gesing et al. and respectfully request reversal of the rejection and issuance of the Notice of Allowance.

The undersigned authorizes the Commissioner to charge insufficient fees and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully Submitted,

Date: December 16, 2008

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Appendix A

Claims On Appeal

11. A method of selecting an object out of a plurality of objects moving in a product flow direction in an operation area for transport to a predetermined location, the method comprising:

detecting the plurality of moving objects present in the operation area and moving in the product flow direction;

selecting an object to be picked from the plurality of moving objects in the operation area, wherein selecting the object comprises

defining a sort direction for each of the plurality of moving objects present in the operation area, wherein the sort direction is at an angle to the flow direction,

defining a passageway along the sort direction of each of said plurality of moving objects,

determining whether any other of said plurality of moving objects penetrates each passageway for each of said plurality of moving objects, and

selecting an object from said plurality of moving objects for which the defined passageway is free from penetration of any other of said plurality of objects, and

picking the selected object from the plurality of moving objects by moving the selected object in the defined passageway in the sort direction for transport to the predetermined location.

12. The method according to claim 11, further comprising:

picking the selected object prior to moving the selected object.

13. The method according to claim 12, wherein the object is picked without disturbing other objects in the operation area.

14. The method according to claim 11, wherein the sort direction is perpendicular to the flow direction.

15. The method according to claim 14, wherein the product flow direction is circular.

16. The method according to claim 11, wherein product flow direction is vertical.

17. The method according to claim 11, further comprising:

determining information regarding the objects, the information comprising size, position, speed, or orientation.

18. The method according to claim 12, wherein the selected object is picked without disturbing other objects in the operation area.

19. The method according to claim 11, wherein selecting the object further comprises selecting an optimal object based upon speed of the objects.

20. The method according to claim 11, further comprising:

repeatedly moving the objects in the flow direction through the operation area.

21. The method according to claim 11, wherein the flow direction is horizontal.

Appendix B

Evidence Appendix

None

Appendix C

Related Proceedings Appendix

None